Circular No. 698

March 1944 • Washington, D. C.

UNITED STATES DEPARTMENT OF AGRICULTURE

INFLUENCE OF TYPE OF HOG ON PRODUCTION EFFICIENCY

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INTRODUCTION

Market demand has always played an important part in determining the type of hogs predominantly raised in this country. The small type was the favorite among breeders of the pure breeds from about 1880 to 1900. Soon after 1900 the small type began to lose its popularity and by 1915 was replaced generally by a type commonly called intermediate. During World War I the pendulum began the swing toward an excessively large type, which reached its climax about the middle of the 1920's. Agitation for a return to an intermediate type got under way, and by 1935 the trend in that direction was well established. However, there has been more or less confusion among hog breeders and farmers for a half century with respect to the type of hog most profitable to the producer and most suitable to the market. Extremely small and extremely large types are still found on farms throughout the country. Although large, intermediate, and small types of hogs have been studied extensively with respect to their economic characters, the results obtained have not always been in agreement and uncertainty still prevails.

EARLIER INVESTIGATIONS

Evvard and Culbertson (*4*)[2] of the Iowa Agricultural Experiment Station were probably the first investigators to conduct tests on this

[1] The authors wish to give credit to E. Z. Russell (retired), S. S. Buckley (deceased), O. G. Hankins, and W. A. Craft, for directing the experiment during various years; to J. X. King, who collected the feed-lot data; and to G. W. Brier (formerly with this Bureau) for statistical work in connection with the study.

[2] Numbers in parentheses refer to Literature Cited, p. 16.

subject. A summary of their results (*3*) shows no material difference in the farrowing weights and vigor of the pigs from the three types. There was an indication, however, that big- and medium-type litters made more rapid gains during the suckling period than did small-type litters. Medium-type hogs were superior to those of large and small types in average daily gain from weaning weight to market weight of 250 pounds. Big-type hogs required the least feed per 100 pounds of gain, and medium-type hogs required less than small-type hogs. On the other hand, at the Missouri Agricultural Experiment Station, Hogan (*6*), working with big-type lard hogs and hogs of a representative bacon breed, was unable to find any difference in rate of gain from 100 to 300 pounds of weight or in the amount of feed required per 100 pounds of gain.

In studies involving five types of lard hogs—very chuffy, chuffy, intermediate, rangy, and very rangy—carried on at the Illinois Agricultural Experiment Station by Carroll and coworkers (*2*), 316 pigs were fed from a weight of approximately 70 pounds to weights of 175 to 275 pounds. These workers did not find type to be a controlling factor in either rate or economy of gain. However, their conclusion was that, since the intermediate type makes as rapid and as economical gains in the feed lot as do the other types and at the same time produces a carcass that more nearly meets the demands of the market, it seems reasonable to recommend it to the producer as superior to the other types studied. From other tests also conducted at the Illinois station, Bull and coworkers (*1*) concluded that neither the chuffy, rangy, intermediate, nor very chuffy types of hogs effectively met the pork-market demands in 1935. The ideal hog would have the quality and plumpness of the intermediate type, the length of the rangy type, and the maturity of the chuffy type.

In a study at the Indiana Agricultural Experiment Station with hogs classified as medium big, intermediate, and medium small, Scott (*10*) found that the longer and bigger the type of hog, the more rapid was the average daily gain from weaning to market weight. There was evidence, moreover, that the additional growth made by the longer bodied type hogs had no influence on prolificacy or ability to raise pigs to market age.

More recently, Lindgren and coworkers (*7*) reported that, in studies conducted at the Oregon Agricultural Experiment Station, breeding, or heredity, had a greater influence on the type of market hogs than amount of feed or management. Chunky hogs were of the same type when finished whether they were given a full ration or a three-fourths ration. Big-type hogs also did not change in type when fed different amounts of feed. McMeekan and Hammond (*8*), on the other hand, found that changes in type may be effected by changing the amount of feed consumed at different stages of growth. These workers showed that, by using large quantities of feed in early life and small quantities later, the hogs produced were of the bacon type, whereas lard-type hogs were produced by inducing slow early growth and rapid late growth.

Recently, Phillips and Zeller (*9*), studying the sexual development of small and large types of swine at the United States Department of Agriculture, Beltsville Research Center, Beltsville, Md., found that males of both the large and small types reached sexual maturity at essentially the same age, but full spermatogenic activity did not

occur at so early an age in small-type boars as in large ones. Large-type sows were younger, on the average, at first estrus than small-type sows.

PURPOSE AND PROCEDURE

The purpose of the work reported in this circular, certain phases of which have been briefly summarized by Zeller (*12*) and Hetzer and Brier (*5*), was to study the relative merits of small-, intermediate-, and large-type Poland Chinas with respect to prolificacy, viability, rate of growth, economy of gain, and dressing percentage. The data used for study are the farrowing and weaning records of 54 small-, 92 intermediate-, and 97 large-type litters produced at the Beltsville Research Center from 1931 to 1938, inclusive. Feed-lot records of 159 small-, 292 intermediate-, and 349 large-type hogs fed to market weight in different feeding experiments are also included.

Some of the animals used as foundation stock were raised at the Beltsville Research Center, and others were purchased from breeders of small-, intermediate-, and large-type Poland Chinas. Each type was carried as a separate herd. Some of the animals subsequently brought into the three herds were selected from the more promising animals raised, and others were purchased. Owing both to the frequency with which new breeding stock was brought in from the outside and to the attempt to keep the amount of inbreeding as low as possible, inbreeding remained at a negligibly low level in all herds. In the selection of new breeding stock, emphasis was placed primarily on the individuality of the animals and care was taken that they should be representative of their type.

Figure 1 shows small-, intermediate-, and large-type gilts similar to those used for breeding purposes. The small-type pigs were short-bodied, low-set animals capable of being fattened at an early age, though slow in reaching sexual maturity. The intermediate-type pigs had more length of body and legs and were not so well finished at as early an age as the former. The large-type pigs were still longer in both body and legs though not so rangy in type as some Poland Chinas. In general, they were slightly narrow and tended to be shallow of body. They were not so well finished at as early an age as either of the other two types.

All animals used for breeding at the same time were fed similar rations and were kept under similar environmental conditions. Most sows were bred to farrow both spring and fall litters. Each sow was placed in a separate pen 2 or 3 days before farrowing time, and pasture lots were provided for the sows and their pigs when the latter were about 1 week old. Usually 2 to 4 sows were kept in each lot during the suckling period, and both they and their pigs had access to self-feeders. Except for spring and fall pigs born in 1932, all suckling pigs were fed shelled corn, a protein mixture of 2 parts of tankage and 1 part each of linseed meal and alfalfa-leaf meal, and the following mineral mixture:

	Percent
Ground limestone	50. 00
Steamed bonemeal	27. 97
Common salt	20. 00
Iron oxide	2. 00
Copper sulphate	. 01
Potassium iodide	. 02

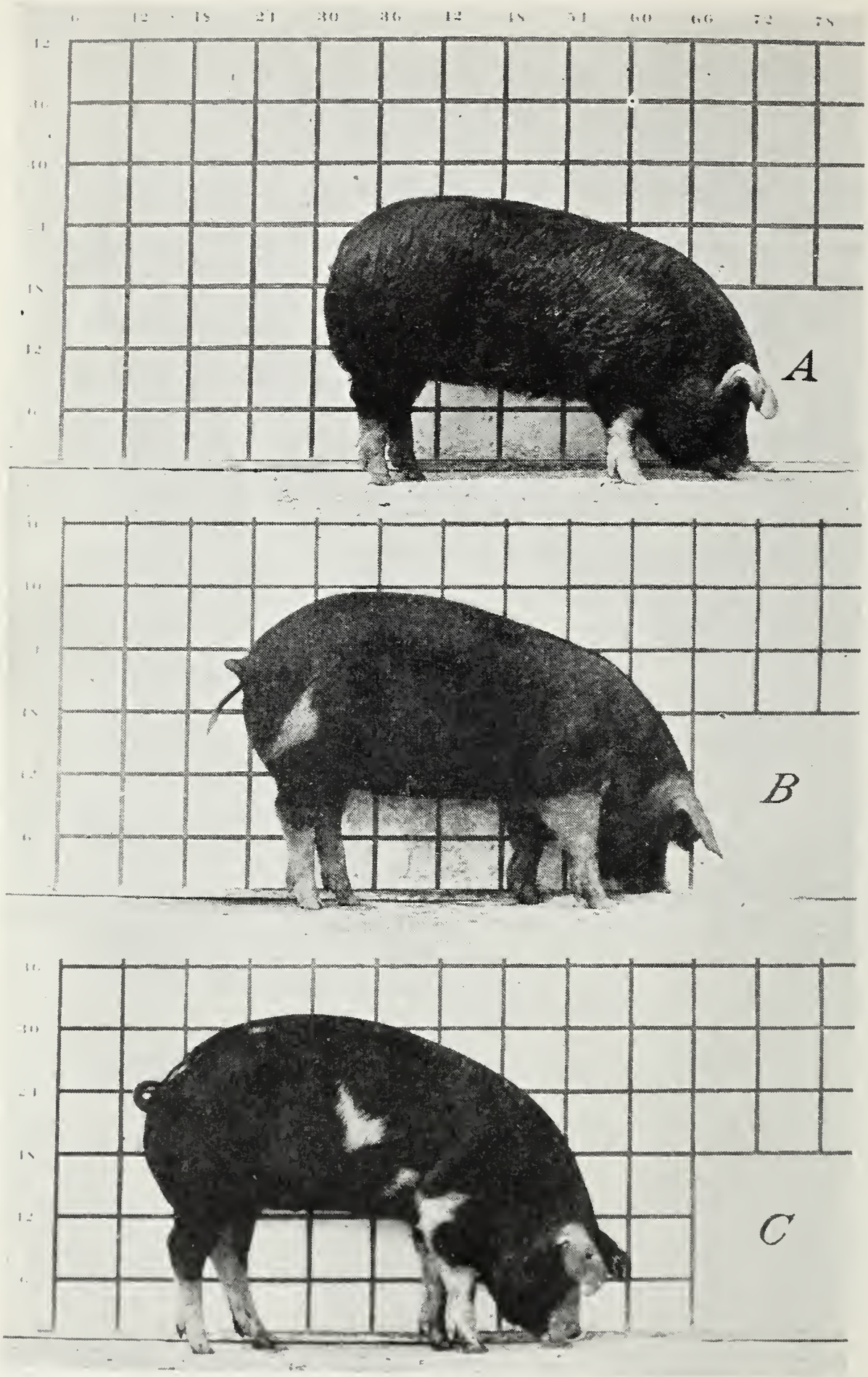

FIGURE 1.—Representative gilt of each type of Poland China hogs used in the experiment, photographed against a background blocked off in 6-inch squares: *A*, Small type, weight 228 pounds; *B*, intermediate type, weight 225 pounds; *C*, large type, weight 215 pounds.

In 1932 the following mixture was fed: 84 percent of wheat; 5 percent each of tankage, alfalfa-leaf meal, and powdered milk; and 1 percent of the above mineral mixture.

Most pigs were weaned at 70 days of age, but a few were weaned as early as 56 or as late as 73 days of age. At weaning time all pigs were examined for their prospective qualities as breeding animals as well as for their suitability as market hogs, and most pigs not selected for breeding were kept for studies on feed-lot performance. Generally each litter was fed to market weight as a separate group, although in a few cases as many as four litters were fed out together. All pigs were weighed at birth and at 28, 56, and 70 days of age, and many pigs were weighed at regular intervals of 1 or 2 weeks prior to weaning. All pigs fed out experimentally were weighed at 4-week intervals until they reached market weight. Data obtained on pigs that died while on test or that failed to reach market weight because of unthriftiness were eliminated from the study.

Three sets of experiments were conducted with the pigs that were selected for the feed lot. In experiment A, which was conducted with intermediate- and large-type pigs during 1931, 1932, 1935, and 1936 and with small-type pigs during 1931 and 1935, all the animals were fed from 72 days of age to a weight of approximately 225 pounds. The pigs in this experiment were fed as a part of the swine record-of-performance test, and all pigs were kept in a house that was divided into separate pens with concrete floors and outside runs. In experiment B, which was conducted from 1931 to 1935 inclusive with pigs of each type in all years, the animals were also fed to approximately 225 pounds weight. However, in this experiment the pigs were not put on test until all litters to be tested each season were 70 days old, and the animals were fed on pasture instead of on concrete floors. Experiment C was conducted from 1936 to 1938 inclusive with pigs of the three types in all years. The main difference in management in this experiment and in experiments A and B was that in experiment C the pigs were fed to the same degree of finish, as judged by visual inspection of the live animal, instead of to the same final weight. All the pigs were 70 days old when put on test and, as in experiment B, all of them were fed on pasture. Since there were wide differences in the ages of the pigs in experiment B and since these might have affected gains while the animals were on test, the initial weights used in calculating average daily gains to market weight were the 70-day weights. The feeds used in the three sets of experiments were the same as for the suckling pigs.

The data were analyzed mainly by the methods of analysis of variance and covariance as described by Snedecor (*11*). Use of chi-square tests likewise was based on methods described by Snedecor.

EXPERIMENTAL RESULTS

Reproductive Efficiency

All sows selected for breeding were usually bred on the second day of their heat period. Sows failing to conceive were usually rebred as many times as the length of the breeding season permitted. Table 1 shows the distribution of the three types of sows according to the number of seasons they were bred during the experiment, together

with the number of litters produced and the percentage of breeding seasons that resulted in production of litters. The total percentage of successful breeding seasons was 13 percent less for the small- than for the large-type sows and 9 percent less for the large- than for the intermediate-type sows. Both differences were found to have a probability of only about 1 in 20 of having been accidental. From table 1 it is also apparent that among sows exposed to breeding during the same number of seasons, the intermediate type was superior to the large type and the latter was superior to the small type.

The data do not permit an analysis of the extent to which the boars contributed to the differences in the reproductive efficiency of the sows of the three types. However, since all boars used during the various breeding seasons proved to be fertile, differences in the fertility of the sows probably accounted for a greater part of the differences in reproductive efficiency among the three types than differences among boars. That the boars did have some influence, however, is suggested by the fact that among sows that had litters, those of the large type required an average of only 1.16 services per litter, whereas intermediate- and small-type sows required an average of 1.22 and 1.28 services, respectively.

TABLE 1.—*Average percentages of breeding seasons that resulted in the production of litters by the three types of sows*

Number of seasons sows were bred during experiment	Small type				Intermediate type				Large type			
	Sows	Breeding seasons	Litters produced	Successful breeding seasons	Sows	Breeding seasons	Litters produced	Successful breeding seasons	Sows	Breeding seasons	Litters produced	Successful breeding seasons
	No.	*No.*	*No.*	*Pct.*	*No.*	*No.*	*No.*	*Pct.*	*No.*	*No.*	*No.*	*Pct.*
1	6	6	1	17	20	20	15	75	12	12	6	50
2	10	20	13	65	13	26	17	65	12	24	11	46
3	9	27	12	44	8	24	17	71	15	45	29	64
4	1	4	3	75	6	24	16	67	4	16	7	44
5	3	15	9	60	3	15	11	73	2	10	7	70
6	4	24	9	38	1	6	5	83	3	18	15	83
7	2	14	7	50	2	14	11	79	1	7	4	57
8									2	16	12	75
9									1	9	6	67
Total	35	110	54	49	53	129	92	71	52	157	97	62

LENGTH OF GESTATION PERIOD

The average gestation period for the 54 small-type litters farrowed was 114.8 days; for the 92 intermediate-type litters, 115.7 days; and for the 97 large-type litters, 116.7 days. Statistical analysis showed that the differences between the large and intermediate types, the large and small types, and the intermediate and small types would be expected to occur by chance less than once in 20 times. That these differences were not due to differences in size and weight of litters of the three types, as one might conclude in view of the general tendency of larger litters to be born at an earlier stage of development than smaller litters, is clearly indicated by the fact that the type differences in length of gestation period were parallel with those in size and weight of litter. Therefore, type differences in length of gestation period

probably were due to genetic factors acting independently of any factors primarily responsible for differences in size and weight of litter.

Numbers and Weights of Pigs Farrowed

As shown in table 2, large-type sows averaged seven-tenths of a pig more per litter than intermediate-type sows and the latter excelled small-type sows by four-fifths of a pig. Although these differences could have been accidental, the difference of 1.5 pigs between those farrowed by the large- and small-type sows was larger than could reasonably have been expected to occur purely by chance.

Table 2.—*Farrowing data for the 3 types of sows*

Type of sows	Litters farrowed	Pigs farrowed	Pigs per litter	Average weight per pig [1]	Pigs born alive
	Number	*Number*	*Number*	*Pounds*	*Percent*
Small	54	316	5.8	2.39	96.8
Intermediate	92	611	6.6	2.61	96.4
Large	97	706	7.3	2.65	93.2

[1] The pigs were generally weighed within 12 hours after birth, but a few were weighed as long as 24 hours after birth.

The percentage of pigs born alive was lowest for the large type and highest for the small type. The advantage of the small type over the intermediate type was too small to be proof of real differences, but the advantages of both the small and intermediate types over the large type were great enough to support the conclusion that the last-mentioned type was inferior to the other two in percentage of live births. Since large-type sows farrowed larger litters in general than either of the other two types, the apparent inferiority of the large type in percentage of pigs born alive may have been due to the general tendency for the proportion of pigs born dead to increase with an increase in litter size, but the results are based on too small numbers to permit dependable conclusions.

The small-type pigs had a lower birth weight, on the average, than those of the intermediate type, and the latter weighed slightly less than those of the large type. The difference between the large and intermediate types could have been accidental, whereas the differences between the intermediate and small types and the large and small types were larger than could reasonably have been expected to occur purely by chance. That these latter differences were not due to type differences in litter size but to differences in the heredity of the pigs themselves is indicated by the fact that within each type there was a tendency for birth weight to decrease with an increase in litter size, whereas both of these factors increased from the small to the intermediate type and from the latter to the large type.

Numbers, Weights, and Gains of Pigs Weaned

Table 3 shows the weaning data for the three types of pigs. Although a few pigs were not weaned at the age of 70 days, all of them that survived to weaning were weighed at that age and comparisons were made on that basis.

Small-type litters averaged one pig less at weaning than those of the intermediate type, which in turn averaged one-tenth pig less than the large-type litters. The latter difference is too small to indicate a real advantage for the large type, but the former, as well as the difference between the large and small types, is large enough to indicate real advantages.

TABLE 3.—*Number and weight, at 70 days of age, of pigs weaned from the three types of sows*

Type of sows	Pigs weaned	Pigs per litter	Pigs born alive that lived to weaning	Average weight per pig	Average gains to weaning
	Number	*Number*	*Percent*	*Pounds*	*Pounds*
Small	194	3.6	63.4	32.1	29.6
Intermediate	420	4.6	71.3	37.5	34.7
Large	450	4.7	68.4	39.3	36.5

In percentage of pigs weaned of those born alive, there was a difference of 2.9 percent in favor of the intermediate over the large type and 5.0 percent in favor of the large over the small type. The difference between the intermediate and small types, 7.9 percent, is large enough to be proof of real differences, but both of the other two differences are too small to warrant dependable conclusions.

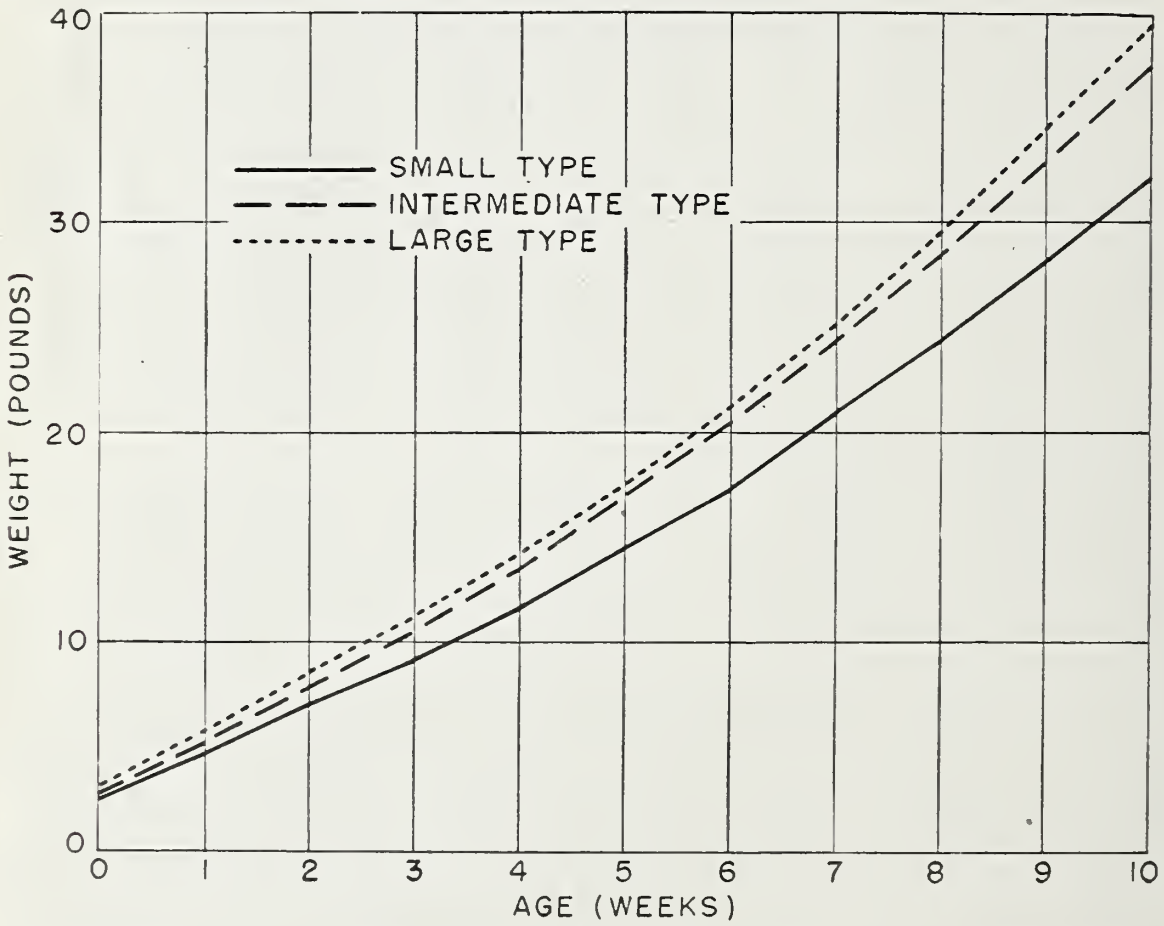

FIGURE 2.—Growth curves of small-, intermediate-, and large-type pigs raised to 10 weeks of age.

Table 3 also shows that the small-type pigs weighed less at 70 days of age than the intermediate-type pigs, which were not so heavy as those of the large type. Both differences, as well as the difference between the large- and small-type pigs, were found to be highly significant. Although a negative correlation was found between

number of pigs weaned per litter and weaning weights when calculated on an intratype basis, both litter size and weaning weight increased from the small to the intermediate type and from the intermediate to the large type. Thus it would seem that litter size was not responsible for the type differences in weaning weight but that, as in the case of birth weight, the type differences in weaning weights were largely due to differences in the heredity of the pigs themselves.

Weekly weights were not obtained for all pigs, but there were enough weights for each to justify the construction of growth curves for the three types. The method used was to estimate the missing weights by means of straight-line interpolations and to combine these with the weights of other pigs at the same ages. The growth curves thus obtained are given in figure 2, which shows that the pigs of each type tended to make a steady increase in their rate of gain. This tendency, however, was not so pronounced for the small-type pigs as for those of the other two types. Weight increases of the intermediate-type pigs were slightly lower than those of the large-type pigs. A statistical analysis showed that the differences in gains among the three types were all large enough to be highly significant. Evidence was also obtained to support the conclusion that type differences in gains were due not so much to type differences in birth weight as to differences in rate of growth after birth.

Rate of Gain and Feed Requirements in the Feed Lot

A summary of the feed-lot performance of the three types of hogs in the three experiments is given in table 4. Figure 3 shows their growth curves from the tenth through the twenty-sixth week. Weekly weights were estimated by applying a straightedge to the nearest weight available for each hog and combining the weights thus obtained with those for other hogs of the same age.

Table 4.—*Summary of average gains made by the 3 types of hogs self-fed in groups, together with feed requirements*

Experiment and type of hog	Hogs fed to market weight	Weight at beginning of test	Days on test	Final weight	Total gain	Daily gain	Feed per 100 pounds of gain [1]
Experiment A:	*Number*	*Pounds*	*Number*	*Pounds*	*Pounds*	*Pounds*	*Pounds*
Small	11	31	173	222	191	1.10	411
Intermediate	58	42	138	214	172	1.27	390
Large	59	40	163	222	182	1.16	401
Experiment B:							
Small	63	37	204	220	183	.93	445
Intermediate	172	40	170	222	182	1.10	423
Large	196	41	185	222	181	1.03	424
Experiment C:							
Small	85	30	131	143	113	.88	397
Intermediate	62	36	141	214	178	1.28	388
Large	94	39	172	252	213	1.25	399

[1] Figures weighted according to the number of pigs or litters included.

As is clearly shown by figure 3 and to a lesser extent by table 4, intermediate-type hogs, though not so heavy at the beginning of two experiments as large-type hogs, made faster gains in each of the three experiments than the latter, which in turn made more rapid gains than small-type hogs. In experiment A, the differences in average daily gains in favor of the intermediate- and large-type hogs were too small

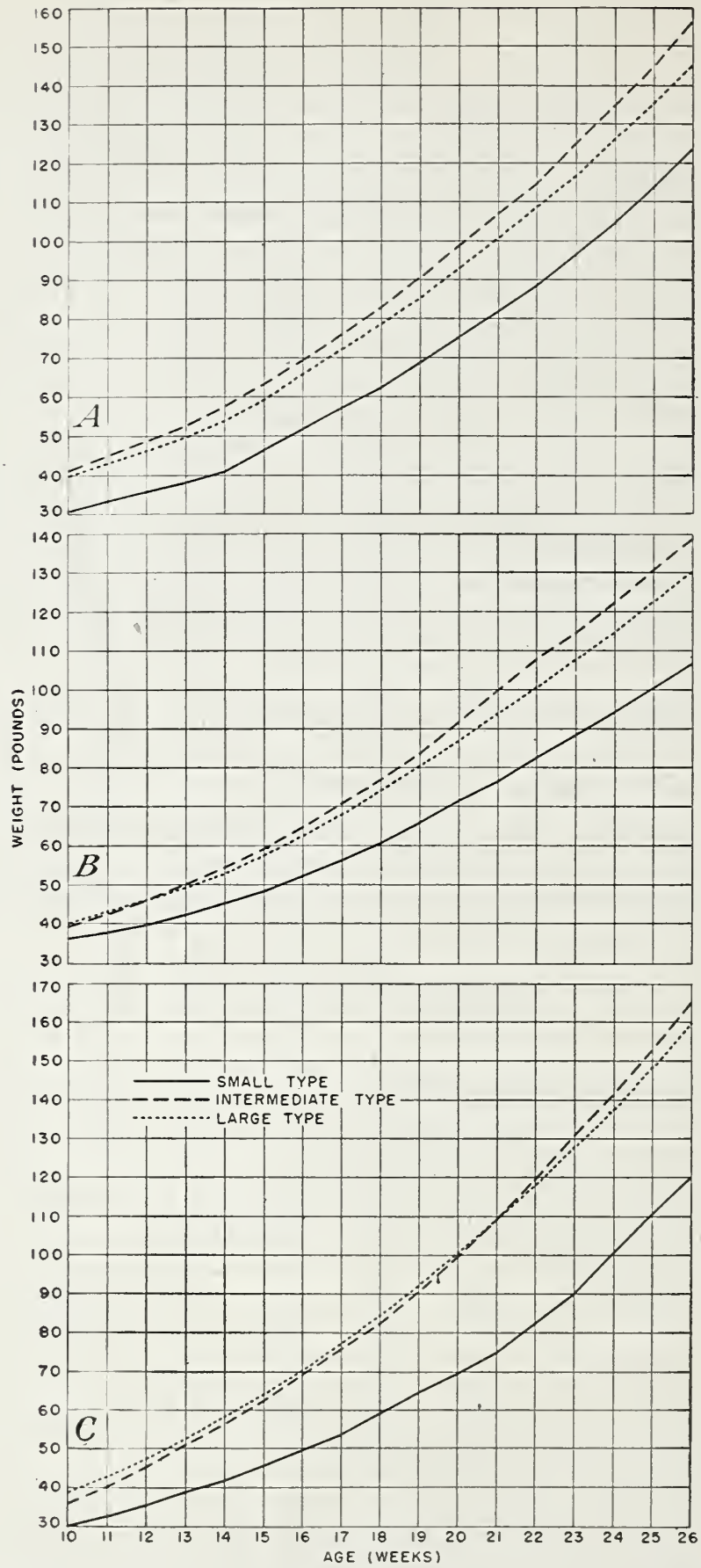

FIGURE 3.—Growth curves of small-, intermediate-, and large-type hogs in the three experiments, *A*, *B*, and *C*.

or based on too small numbers to justify definite conclusions. In experiments B and C, the average daily gains of both the intermediate- and large-type hogs, as compared with those of the small type, were larger than could reasonably be expected to have occurred purely by chance. The advantage of the intermediate over the large-type hogs was statistically significant in experiments A and B but not in experiment C. The difference between these two types in experiment C was the smallest in any of the groups. Since there was considerable variation in the weights of the pigs when they were put in the feed lot, the question arose whether differences in initial weight rather than differences in rate of gain might be responsible for the differences in gains among the three types. Statistical study of the data showed that, although for each type the gains to 26 weeks tended to increase with an increase in initial weight, type differences in rate of gain probably played a more important part than initial-weight differences in determining the differences in gains made by the three types.

As shown in the last column of table 4, intermediate-type hogs required less feed on the average to produce 100 pounds of gain than either the large or small types when fed out in the same experiment. There is also an indication that in this respect large-type hogs were superior to those of the small type, for in two of the three experiments the former required less feed on the average than the latter. The above findings, however, must be accepted with reservations. Since all hogs were group-fed, the numbers were too small for a statistical analysis to provide dependable conclusions.

Market Grades, Type Grades, and Dressing Percentages

Table 5 shows a summary of the market grades and dressing percentages of representative hogs of each type that were fed to market weights in the three experiments. When the three types were fed to the same final weight of approximately 225 pounds (experiments A and B), the large-type hogs were not so well finished as those of the intermediate type, whose degree of finish in turn was not so good as that of the small type. The appearance of representative hogs of the three types at the end of these experiments is shown in figure 4. When the animals were fed to the same degree of finish (experiment C), the large type graded as high as the intermediate type but both were somewhat inferior in quality to small-type hogs. Figure 5 shows a typical hog of each type at the end of experiment C.

Table 5.—*Summary of market grades and dressing percentages of small-, intermediate-, and large-type hogs*

Experiment and type of hog	Hogs slaughtered	Final weight	Market grade [1]	Dressing percentage
	Number	*Pounds*		*Percent*
Experiment A:				
Small	5	223	Choice+ to Choice	78.6
Intermediate	38	225	Choice to Choice−	73.5
Large	41	224	Good	74.0
Experiment B:				
Small	23	221	Choice+	78.5
Intermediate	86	225	Choice−	74.1
Large	127	225	Good	74.1
Experiment C:				
Small	38	144	Choice+ to Choice	74.3
Intermediate	36	211	Choice to Choice−	75.3
Large	31	243	do	76.7

[1] + indicates the high third of the grade; −, the low third.

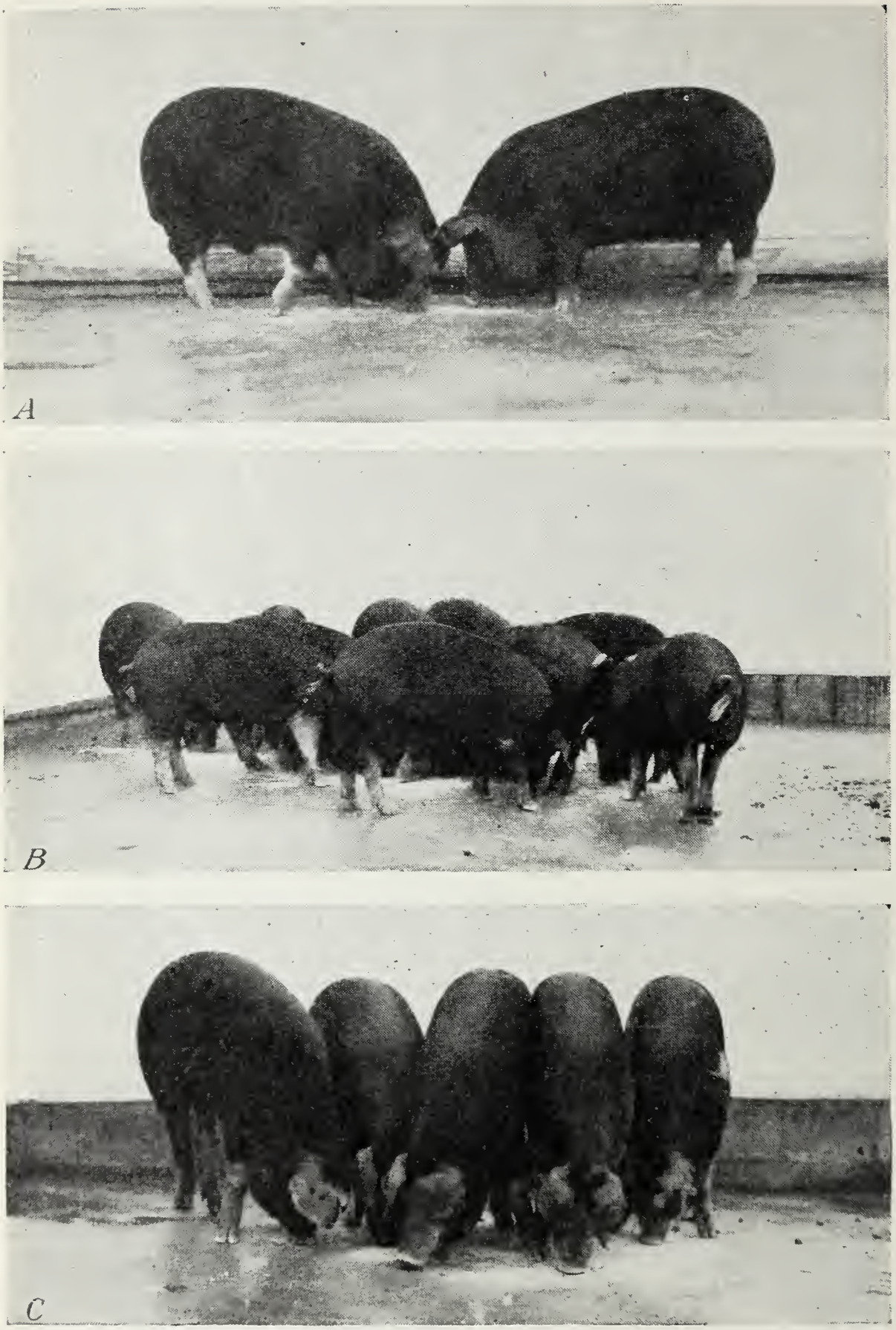

FIGURE 4.—Representative hogs of the 3 types fed to average weight of 225 pounds: *A*, Small type, averaging 236 pounds; *B*, intermediate type, averaging 222 pounds; *C*, large type, averaging 219 pounds.

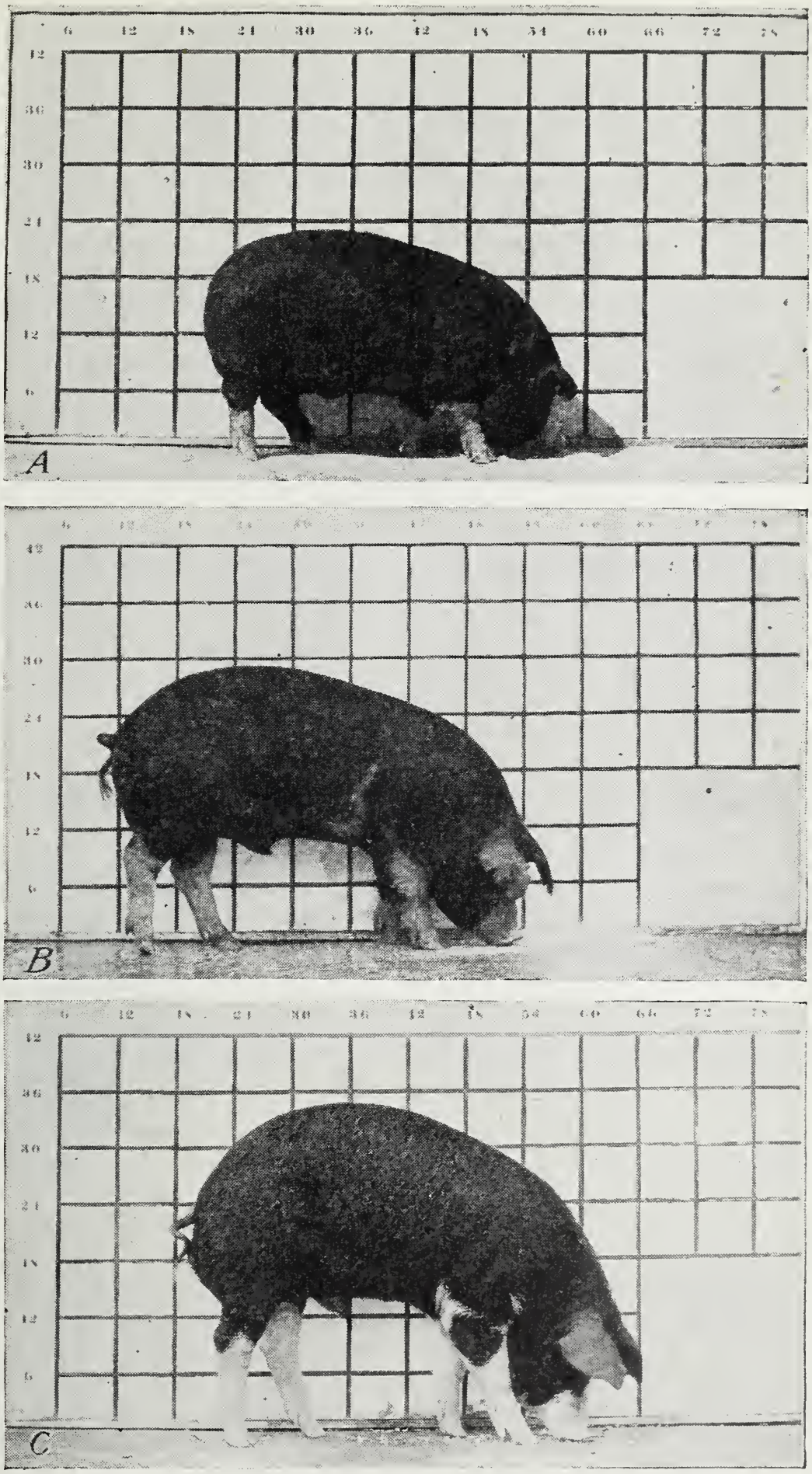

FIGURE 5.—Typical hog of each type fed to same degree of finish: *A*, Small type, weight 153 pounds; *B*, intermediate type, weight 225 pounds; *C*, large type, weight 254 pounds.

When slaughtered at approximately 225 pounds of weight, the small-type hogs dressed 4 to 5 percent higher than the intermediate- or large-type hogs, and the last two had the same or nearly the same dressing percentage. When the hogs were slaughtered at the same degree of finish, there was a difference of about 1 percent between the large and intermediate types and between the intermediate and small types. In experiments A and B, the differences in favor of the small-type hogs over the other two are large enough to be significant. In experiment C, the difference in favor of the intermediate over the small type is too small to support dependable conclusions, but the differences between the large and the intermediate types and between the large and small types are large enough to indicate real differences.

The distribution of the three types of hogs according to their type score when the animals were taken off test is given in table 6. The hogs of small-type breeding were all classed as small-type hogs. Some of the intermediate-type hogs, on the other hand, were given scores both above and below the limits set for that type. Many of the large-type hogs were graded intermediate+, intermediate, and even as low as intermediate—. These results suggest that both intermediate- and large-type hogs were not so pure in their genetic make-up for type characters as the small-type hogs used in this study.

TABLE 6.—*Distribution of type scores for small-, intermediate-, and large-type hogs at market weight*

Experiment and type of hog	Hogs with type score of [1]—									Total hogs
	Small—	Small	Small+	Intermediate—	Intermediate	Intermediate+	Large—	Large	Large+	
Experiment A:	*Number*	*Number*	*Number*	*Number*	*Number*	*Number*	*Number*	*Number*	*Number*	*Number*
Small	2	2	1							5
Intermediate			5	17	14	2				38
Large					2	15	17	7		41
Experiment B:										
Small	4	15	4							23
Intermediate				11	53	18	4			86
Large				2	5	35	57	27	1	127
Experiment C:										
Small	12	26								38
Intermediate			6	2	26	2				36
Large					4	10	9	8		31
Total	18	43	16	32	104	82	87	42	1	425

[1] + indicates the high third of the score; —, the low third.

SUMMARY AND CONCLUSIONS

The object of the investigation reported in this circular was to study the relative merits of small-, intermediate-, and large-type hogs with respect to prolificacy, viability, rate of growth, economy of gain, and dressing percentage. The data included farrowing and weaning records of 54 small-, 92 intermediate-, and 97 large-type litters produced at the United States Department of Agriculture, Beltsville Research Center, Beltsville, Md., from 1931 to 1938, inclusive. Feed-lot records of 159 small-, 292 intermediate-, and 349 large-type hogs fed to market weight in different feeding experiments were also included.

The percentage of breeding seasons that resulted in production of litters was higher for the intermediate- than for the large-type herd, which in turn had a higher reproductive efficiency than the small-type herd. The number of services required per litter was slightly lower for large- than for intermediate-type sows. The latter in turn did not require so many services, on the average, as small-type sows.

The gestation period averaged 114.8 days for the small-type sows, 115.7 days for the intermediate-type sows, and 116.7 days for the large-type sows.

Large-type sows averaged seven-tenths of a pig more per litter at birth and one-tenth of a pig more per litter at weaning than intermediate-type sows, and the latter excelled small-type sows by four-fifths of a pig per litter at birth and one pig per litter at weaning.

The percentage of pigs born alive in the small-type herd was 0.4 and 3.6 percent higher than in the intermediate- and large-type herds respectively. The percentage of pigs born alive that lived to weaning was largest in the intermediate-type herd and smallest in the small-type herd.

Large-type pigs were somewhat heavier at birth and at weaning than intermediate-type pigs and the latter were heavier than those of small type. The differences in weaning weights of the three types were due largely to differences in growth rate after birth.

When fed to a final weight of approximately 225 pounds, intermediate-type hogs gained about 0.17 pound more daily than small-type hogs and required about 21 pounds less feed per 100 pounds of gain. The former also gained 0.09 pound more than large-type hogs and required about 6 pounds less feed per 100 pounds of gain. When fed to the same degree of finish, intermediate-type hogs averaged 0.40 pound more daily gain than small-type hogs, 0.03 pound more than large-type hogs, and required about 10 pounds less feed per 100 pounds of gain than either of the other two types. The final feed-lot weights of small-, intermediate-, and large-type hogs, when fed to the same degree of finish, averaged 143, 214, and 252 pounds, respectively.

When slaughtered at approximately 225 pounds of weight, small-type hogs dressed about 4.5 percent higher than hogs of the other two types. When slaughtered at approximately the same degree of finish, the large-type hogs dressed 1.4 percent higher than those of the intermediate type and the latter dressed 1.0 percent higher than those of the small type.

As far as could be determined from visible differences, both the intermediate- and large-type herds were not so pure genetically as the small-type herd.

The results of this study support the following conclusions: (1) Intermediate-type hogs in general are superior to those of small or large type from the standpoint of the swine producer; (2) small-type hogs are less efficient in general performance, even when slaughtered at approximately 150 pounds, than those of the other two types; (3) large-type hogs must be fed to weights of more than 225 pounds, under good feeding and management practices, to attain sufficient finish to be graded as Choice.

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U. S GOVERNMENT PRINTING OFFICE: 1944